VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification

The Specification has been amended as shown in the Substitute Specification – Changes Shown.

In the Claims

1. (Amended) In the manufacture of a magnetic recording medium, a method of varying coercivity comprising the steps of:

a) providing a substrate for supporting magnetic layers;~~,~~

b) sputtering on the substrate an underlayer having a lattice structure for matching with a magnetic layer lattice structure;~~,~~

c) sputtering a first magnetic layer on the underlayer, the first magnetic layer having a first alloy composition **and a first coercivity**;~~,~~ and

d) sputtering a second magnetic layer on **and in contact with** the first magnetic layer, the second magnetic layer having a second alloy composition which differs from the first alloy composition **and a second coercivity which differs from the first coercivity**, whereby a coercivity of the two magnetic layers is **between the first and second coercivities and** is determined by the relative thicknesses of the two magnetic layers.

9. (Amended) The method as defined by claim 8 wherein step a) includes providing a substrate **that is~~selected from~~** nickel phosphorus **or~~and~~** ceramic glass.

11. (Amended) A magnetic recording medium, comprising:

a substrate;~~,~~

an underlayer supported by the substrate;~~,~~

a first magnetic layer on the underlayer, said first magnetic layer having first alloy composition **and a first coercivity**;~~,~~ and

a second magnetic layer on **and in contact with** the first magnetic layer, the second magnetic layer having a second alloy composition which differs from the first alloy composition **and a second coercivity which differs from the first coercivity,** whereby **a** coercivity of the two magnetic layers is **between the first and second coercivities and is** determined by **a** relative thickness of the first magnetic layer to the thickness of the two magnetic layers.

16. (Amended) The magnetic recording medium as defined by claim 13 wherein the first magnetic layer comprises an alloy having a composition of Co-20Cr-10Pt-8B, and the second magnetic layer comprise~~sing~~ an alloy having a composition of Co-20Cr~~R~~-8Pt-4Ta.

17. (Amended) The magnetic recording medium as defined by claim 13 wherein the first magnetic layer comprises an alloy having a composition of Co-20Cr-8Pt-4Ta, and the second magnetic layer comprise~~sing~~ an alloy having a composition of C~~o~~O-18Cr-6Pt-3Ta.

18. (Amended) The magnetic recording medium as defined by claim 11 wherein the substrate is ~~selected from~~ nickel phosphorus **or**~~and~~ ceramic glass, and the underlayer is ~~selected from~~ chromium **or**~~and~~ chrome alloy.

19. (Amended) The magnetic recording medium as defined by claim 18 and further including a seed-layer between the underlayer and the substrate, a carbon overcoat layer over the second magnetic layer, and a lubricant layer on the carbon overcoat layer.

20. (Amended) A method for establishing ~~a~~**the** coercivity of magnetic recording material on a substrate comprising the steps of providing a substrate and at least two cobalt based alloy magnetic layers sputtered in sequence on the substrate **and in contact with one another, wherein the first magnetic layer has a first composition and a first coercivity, the second magnetic layer has a second composition and a second coercivity,** with the relative thicknesses of the two magnetic layers determining **the** coercivity**, and the coercivity being between the first and second coercivities**.

Claims 21-50 have been added.

REMARKS

Claims 1-50 are pending. In this Response, claims 1, 9, 11 and 16-20 have been amended, and claims 21-50 have been added.

I. CLAIM OBJECTIONS

Claims 16 and 17 are objected to because claim 16 should read "Co-20Cr" in line 3 and claims 17 should read "Co-18Cr" in line 3. Applicant agrees. Claims 16 and 17 have been amended with appropriate corrections.

Claims 9 and 18 are objected to because of improper Markush groupings. Applicant agrees. Claims 9 and 18 have been amended with appropriate corrections.

Therefore, Applicant requests that these objections be withdrawn.

II. SECTION 102 REJECTIONS – SONG ET AL.

Claims 1, 11, 13, 18 and 20 are rejected under 35 U.S.C. § 102(b) as being anticipated by *Song et al.* (IEEE Trans. Magn., Vol. 30, No. 6, pp. 4011-13, November 1994).

Song et al. discloses magnetic media with a Cr underlayer, first magnetic layer (M1), Cr interlayer, second magnetic layer (M2), and carbon overcoat. Thus, the first and second magnetic layers do not contact one another.

Claims 1, 11 and 20 have been amended to recite that the first and second magnetic layers are "in contact" with one another.

In sustaining this rejection, the Examiner states as follows:

> Song et al. disclose a magnetic recording medium and a method of making said medium wherein a Cr underlayer is sputtered onto a NiP-plated aluminum substrate, a first magnetic layer, a second magnetic layer and a carbon overcoat were sputtered onto the Cr underlayer (see p. 4011, section II, first paragraph).

Rather than quibble about the meaning of "on," claims 1, 11 and 20 as amended make clear that the first and second magnetic layers contact one another. *Song et al.* fails to teach or suggest this approach.

Under 35 U.S.C. §102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. *Akzo N.V. v. United States International Trade Commission*, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). That is, the reference must teach every aspect of the claimed invention. M.P.E.P. § 706.02.

Therefore, Applicant requests that these rejections be withdrawn.

III. SECTION 102/103 REJECTIONS – CHEN ET AL.

Claims 1-3, 8-13 and 18-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over *Chen et al.* (U.S. Patent No. 5,763,071).

Chen et al. discloses a magnetic recording medium that includes a magnetically isotropic layer on a magnetically anisotropic layer. The magnetically isotropic layer has a ratio of circumferential coercivity to radial coercivity of about 1, and the magnetically anisotropic layer has a ratio of circumferential coercivity to radial coercivity of greater than 1 (col. 4, lines 57-61). The magnetic recording medium has high coercivity of at least 2,500 Oersteds (col. 7, lines 48-52). However, the reason underlying the achievement of this property is not known (col. 4, lines 48-51).

Chen et al. fails to disclose the coercivity of the magnetically isotropic and anisotropic layers. *Chen et al.* fails to teach or suggest that the coercivity of the medium is determined by the relative thicknesses of the magnetically isotropic and anisotropic layers. *Chen et al.* also fails to teach or suggest that the coercivity of the medium is between the coercivities of the magnetically isotropic and anisotropic layers.

To establish a prima facie case of obviousness (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations (MPEP § 2143). See also *C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340, 1351 (Fed. Cir. 1998). It is insufficient that the prior art shows similar components unless it also contains some teaching, suggestion or incentive for arriving at the claimed structure. See *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir. 1990). Moreover, if the proposed modification would render the prior art unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification (M.P.E.P. § 2143.01).

Therefore, Applicant requests that these rejections be withdrawn.

IV. SECTION 103 REJECTIONS – SONG ET AL.

Claims 2-3, 6, 8-9 12 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Song et al.*

Applicant submits that these rejections are moot for the reasons mentioned above.

V. SECTION 103 REJECTIONS – CAREY ET AL.

Claim 1-5, 7-9, 11-15, 17-18 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Carey et al.* (U.S. Patent 6,280,813).

Carey et al. discloses a magnetic recording medium that includes two ferromagnetic film separated by a nonferromagnetic spacer film. Thus, the ferromagnetic films do not contact one another.

Claims 1, 11 and 20 have been amended to recite that the first and second magnetic layers are "in contact" with one another.

In sustaining this rejection, the Examiner states as follows:

> Carey et al. disclose a magnetic recording medium having a Cr underlayer sputtered on a NiP-plated AlMg substrate, a first magnetic layer formed from CoCrPtB and a second underlayer formed from CoCrPtB (Fig. 3).

Rather than quibble about the meaning of "on," claims 1, 11 and 20 as amended make clear that the first and second magnetic layers contact one another. *Carey et al.* fails to teach or suggest this approach.

Therefore, Applicant requests that these rejections be withdrawn.

VI. NEW CLAIMS

Claims 21-50 have been added to further clarify various features of the invention. No new matter has been added.

Claim 21 recites that the second magnetic layer is "in contact" with the first magnetic layer. *Song et al.* and *Carey et al.* fail to teach or suggest this approach. Claim 21 also recites that a coercivity of the medium is "between" the first and second coercivities of the first and second magnetic layers. *Chen et al.* fails to teach or suggest this approach. Claim 21 also recites that the first and second magnetic layers have first and second remanences that are "the same." *Chen et al.* fails to teach or suggest this approach.

Claim 31 recites that the second magnetic layer is "in contact" with the first magnetic layer. *Song et al.* and *Carey et al.* fail to teach or suggest this approach. Claim 31 also recites that a coercivity of the medium is "between" the first and second coercivities of the first and second magnetic layers. *Chen et al.* fails to teach or suggest this approach. Claim 31 also recites that the first and second magnetic layers are deposited under first and second deposition conditions that include a temperature and bias of the substrate that are "the same." *Chen et al.* fails to teach or suggest this approach.

Claim 41 recites that the second magnetic layer is "in contact" with the first magnetic layer. *Song et al.* and *Carey et al.* fail to teach or suggest this approach. Claim 41 also recites that a coercivity of the medium is "between" the first and second coercivities of the first and second magnetic layers. *Chen et al.* fails to teach or suggest this approach. Claim 41 also recites that the first and second magnetic layers have first and second alloy compositions that are different "quaternary" alloy compositions. *Chen et al.* fails to teach or suggest this approach.

VII. OTHER AMENDMENTS

The Specification and Claims have been amended to improve clarity. No new matter has been added.

VIII. INFORMATION DISCLOSURE STATEMENT

An Information Disclosure Statement with a PTO-1449 was filed on September 26, 2000. The Office Action indicates in the Summary that the PTO-1449 is attached, however the PTO-1449 was not attached. Applicant requests that the PTO-1449 be attached to the next written communication.

IX. FEES

The fee is calculated below:

For	Claims Remaining After Amendment	Highest Number Previously Paid For		Extra Claims	Rate		Additional Fee
Total Claims	50	– 20	=	30	x $18	=	$540
Independent Claims	6	– 3	=	3	x $84	=	$252
Multiple Dep. Claim	0	0			$280	=	0
Total Fee						=	$792

Please charge the $792 fee and charge any underpayment and credit any overpayment to Deposit Account No. 13-0016/MMC011.

X. CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on April 15, 2002.

D Sigmond — 4/15/02

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Date of Signature

Respectfully submitted,

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